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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kazuo Morichi

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EXAMINER

WOODS, ERIC V

ART UNIT	PAPER NUMBER
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2628

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/532,501	Applicant(s) MORICHI ET AL.	
	Examiner Eric Woods	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The title should be between 2 and 6 words and be descriptive of the invention. The current title is too long. Examiner suggests amending the title to "CAD System With Process Definition Group" which contains a key inventive feature. The method and computer program product are implied in the claim as written.

The abstract of the disclosure is objected to because of the length. Correction is required. See MPEP § 608.01(b). The abstract of the disclosure may not exceed 100 words, where the current Abstract is significantly longer than this. Applicant is reminded that the Abstract will be printed on the first page of the patent and needs to be small enough to fit therein, where the instant abstract is a page long in and of itself.

The specification is objected to because on pages 7-8 there is handwriting on the Figure descriptions.

The specification is object to because on page 12, line 11; page 13, line 6; Figure 4 is referenced wherein Figure 4 consists of 4 sub-drawings 4(a)-4(d) and the relevant one(s) are not specified.

The specification is objected to because on page 14, line 24, it states that a “drill diameters” and “drilling depths” fields exist in Figure 8, where those are correctly referred to as (“diameter” or “machining diameter”) and “machining depth”.

The specification is objected to because the Brief Description of Drawings section fails to mention the following Figures: 4(d), 15(a), 15(b), and 15(c).

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The specification is objected to as failing to comply with 35 USC 112, first paragraph, because it uses a plurality of terms such as ‘processed-body’, ‘process-contents’, and the like do not have clear English language equivalents and/or sufficient explanations. Applicant is asked to please correct the specification and submit a new one.

Drawings

The drawings are objected to because Figure 6 runs off the edge of the page, e.g. it is too close to the edge of the sheet and cannot be easily understood.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 11(a) and 11(c) contain element 59, which is defined for Figures 4 and 5 but not for these Figures, where it is assumed that it is different (since Figures 4

and 5 refer to the computer graphics representation and Figure 11 and its sub-figures apply to the actual part).

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 13-27 are objected to because the claims appear to be a direct translation from a foreign language and do not utilize correct, idiomatic English. Applicant is requested to please provide a more clear set of claims in the response. Namely, the terms 'processed-body', 'process-contents', and the like do not have clear English language equivalents and/or sufficient explanations.

For purposes of examination, examiner is displaying the claim with the believed proper indentation.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Art Unit: 2628

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 13-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Specifically, claim 26 is directed to a computer program per se.

Claims 26 and 27 are evidence against claims 13-25, wherein the specification reveals in Figures 2 and 3 that the recited structures in claims 13 or 14 (process definition group, processing information group, processed-body division, process-contents division) are nothing but software in the memory of a computer.

Therefore, applicant is attempting to preemptively obtain coverage for all conceivably computer data structures.

Claims 13-25 are therefore properly regarded as data structures per se held in a memory, and they are not statutory for at least those reasons. Claims 13-25 are not directed to a method, but rather to a system, which is entirely software.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claim 13 and 14 attempts to claim multiple statutory categories of invention (e.g. system, method, computer program product (software)) and is thusly indefinite. See *Amazon.com vs. IPXL Holdings*.

Further, claim 27 must be indefinite, because it claims an article of manufacture that contains a system, thusly including two statutory categories of invention in one invention. This additionally proves examiners point that the claims are entirely software and thusly are both pre-emptive as above and are computer programs per se.

Claims 13-27 are rejected under 35 USC 112 as having terms 'processed-body', 'process-contents', and the like do not have clear English language equivalents and/or sufficient explanations. It is unknown how such components are disposed, whether or not they comprise functional descriptive material in a computer memory only, or a myriad of other such details. As such, examiner is turning to the specification for definitions of terms. The rejections below under art are given with respect to examiner's best interpretations.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 2628

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The claims will be provided below as the template for rejecting them. Reference character(s) present in the claims as written will not be provided.

Claims 13, 15-19, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al (US 5,991,528 A1).

As to claims 13 and 26-27 (computer program, computer readable medium obvious variants of software claim as explained above, and variants of method /system claim)

A CAD system comprising: (Taylor Abstract)

-A processing information group; and (Taylor 1:45-55, as below)

-A process definition group including:

-A processed-body division which stores a part whose material substance is to be removed by a single or series of processing operations, as a body for each of the process operations by pre-defined work instructions; and (Taylor 1:45-55, where the part consists of a plurality of parts as stated therein, where such operations are defined or may be defined in terms of raw materials (e.g. a slab)- such as in 1:55-65, where this is acted upon by the machine to plan operations (1:30-45). Specifically, 3:5-15 describes how Taylor generates a data file containing all the data for the part to be produced (5:55-6:34), with elements as described in and especially focused on 9:60-10:64 – SEE FIGURE 5, parameter

data 150 (specifically body 154, surface 156, detail 158, and geometry 160)

explained as cited in 9:30-55, Figures 6A, 6B, and 7-12 and 9:60-10:65)

-A process-contents division which stores information about work contents of each process operation in relation to the body, the process definition group containing definitions of a plurality of process operations, upon selection from the process operations and parts to be processed in an original product body, shape information is extracted for each of the selected parts to be processed and tools and parameters for process the extracted shape are determined, (Taylor clearly teaches that a basic manufacturing plan stores the sequence of operations (1:30-55) and the processes and their sequences (1:65-2:15) along with selected tools and the like (2:20-35) and associated parameters (2:30-45), where this consists of a plurality of parts. Next, the processing file is generated containing the formation information, e.g. the types of operations to be performed upon it (6:40-7:20, 7:35-60), where such data is stored in the file as to the specific process, tool, bit, etc, as in (9:40-65), as explained in the Process section 152 in Figure 5 (9:50-61), and 10:65-11:25)

-A processed bodies are generated, the generated processed bodies are stored in the processed-body division, and (Taylor clearly generates a sequence of operations to be applied to in the sequence (as in 1:65-2:15, 7:35-60), where the sequence of processes is stored in process section 152 in Figure 5 – 10:65-11:15, and changes to the files are stored as well, as set forth in the cited sections and 11:25-45)

-The determined tools and parameters are stored in the process-contents division. (Taylor clearly teaches that the determined tools and parameters are stored (e.g. roughness, tolerance, etc) in the recited files, as in 11:60-12:3, 2:20-35, 5:15-20 and the like, as those determined elements must be present in the file, and finally such results are compiled to object neutral code and downloaded, with the final data in process data file 104 (8:10-23))

Taylor teaches the limitations of the instant claim except it does not expressly teach the software modules configured in the precise manner that the instant specification does. That is to say, as examiner has stated previously the invention is entirely software. Taylor does not expressly teach that certain data fields are in the processed-bodies and process-contents group, as set forth above (namely that the processed body information is held in the process-body division per se as set forth in applicant's specification when the header data of Taylor and the parameter data of Taylor are construed as being roughly equivalent to the software structures in the instant claims as disclosed above, specifically concerning process linkages directed to the part being held separately). Firstly, the present invention is entirely software, and the system of Taylor is functionally equivalent in every manner and stores the exact same data in memory in file formats as expressly shown in Figures 5A-12 and explained in the specification. However, the storage of such data is not in the exact same format. Applicant has not shown any criticality in using a particular data structure in the instant specification, and software is known to be configurable in any imaginable format that is

convenient to the user. Since all the data merely exists within the memory of a computer, it would have been obvious to one of ordinary skill in the art to use a convenient file format to contain the data, which would therefore cover the invention of applicant.

As to claim 15, clearly Taylor suggests using a combination of the tool definition groups – see 6:65-7:10, Figures 6B, 7-8, and the like.

As to claim 16, clearly a plurality of processing operations are defined, see again 6:65-7:10, Figures 6A-6B, 1:30-45, 2:20-35, and many more locations.

As to claim 17, clearly there are different selectable tool sets for each kind of body, in that different types of operation (grinding, milling, etc) are specified in 10:55-11:40 where it is also known for such files to contain such selectable operation data as in 2:20-40.

As to claim 18, Taylor specifies part data of the various pieces in the header and part info section 130, while the process data for generating that element is stored in the parameter data section 150 and the like.

As to claim 19, Taylor clearly teaches a display monitor that displays part data, monitor 18 in Figure 1, (5:30-6:15), where the use of a GUI-based drawing program, e.g. AutoCAD® is suggested, which clearly comprises displaying 'work contents related to the processed body'. Additionally, 7:20-35 shows where script files are used to generate engineering drawings for such parts. Finally, the user can perform a simulation based on the results (8:30-55) in a GUI environment, where this clearly comprises 'displaying work contents related to the processed body'.

As to claim 25, Taylor teaches the use of AutoCAD which provides for a three-dimensional drawing facility (7:20-35) with use of engineering drawings and the like.

Claims 14, 20, and 24 are rejected under 35 USC 103(a) as unpatentable over Taylor as applied to claim 1 and further in view of Frey et al (US 5,691,909).

As to claim 20, Taylor does not teach the limitation but does teach simulating the manufacturing of parts; Frey teaches simulating parts and generating an 'error shape' to show the difference between the desired part and the capabilities of the machine – see Abstract and Figure 3, 16:1-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the error displaying techniques of Frey to the system of Taylor so that the system of Taylor would show the resultant error from machining as a result of the simulation, as in element 120 and the like, so that the results would be better understood and visualized by the user.

As to claim 24, Taylor suggests it via stating the engineering drawings can be generated (90, 92) as can simulations (120), where the simulation is shown, where each of the different motion and process are shown therein in a graphical model of the process or production operation. The benefits of such are that it would allow visualization of each process step for debugging, as set forth in 8:40-65. Frey does teach showing such shapes for each part at a selected location, as stated above with reference to claim 3 and in the cited locations in the Frey reference. Therefore, based on the combined teaching, it would have been obvious to allow the user to choose a

location (which would be associated with an object) and view the operations located therein for at least the above reasons.

As to claim 14, claims 13 [**the rejection to which is incorporated by reference**] and 14 only differ in that: a) the term 'process definition' in the preamble of claim 13 is replaced by 'process definition group' in the preamble of claim 14; and b) the recitation "as shapes which do not match as after profiling operation or other process operations" occurs in the last part of claim, in the context of the generated shapes, that is that generated shapes that do not match are stored in the processed body division. Item a) is not relevant because there is no practical difference in the claimed item based on the instant specification, in that they both denote the same memory section and/or the like. Item b) can be construed as the error shapes generated by Frey and shown in the simulations by Taylor as above, as described above in the rejections to claim 20, the entirety of which are incorporated by reference. Motivation and combination for so modifying Taylor are found therein.

Claim 21 is rejected under 35 USC 103(a) as unpatentable over Taylor in view of Frey as applied to claim 20, and further in view of Takada et al (US PGPub 2001/0040995 A1).

As to claim 21, Taylor/Frey fail to teach this limitation. Takada teaches superimposing error difference elements in different colors in [0089] to make such differences more visible and easy to understand. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to display the error meshes and whatnot of Frey in different colors because it improves visibility of the graphics and the like – see [0053,0085-0095, and the like].

Claims 17 and 22-23 are rejected under 35 USC 103(a) as unpatentable over Taylor as applied to claim 13 above, and further in view of Watanabe (US 5,701,403 A).

As to claim 17, Taylor does not expressly teach this combination, but Watanabe teaches storing objects as combinations of other objects as in 21:17-22:35, where Taylor at least implicitly suggests this, as in 6:65-7:10 (“...The manufacturing data may include ... body elements, detail elements formed on body elements ...”). Watanabe teaches that storing data in such manner is beneficial because it allows for easier modification of the process model, as in the cited sections. It would have been obvious to one of ordinary skill in the art to combine Watanabe with Taylor for that reason, as well as that set forth in the rejection to claims 22-23 below.

As to claim 22, Taylor does not expressly teach this limitation, but Watanabe teaching deleting segments of three-dimensional composite objects in such a way that the rest of the object remains, such that if the system of Taylor has such a component removed, it will remove the process data associated with it because the linkages are assigned in that manner, see for example (3:30-55, 9:50-10:5, 28:19-65), where deletions in the solid object database are complete, and based on the process data being linked to the surface and body data, as in Figures 5A-12, it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove

the corresponding data structures based on the teachings of Watanabe as cited above so as to remove all unnecessary data structures from memory and to remove the unnecessary data links as described in the above cited sections of Watanabe.

As to claim 23, Taylor does not expressly teach this limitation, but Watanabe teaches copying the parts and their specifications in 17:1-23, where such would have been obvious to one of ordinary skill in the art at the time the invention was made because it thereby obtains the whole shape of the object, as set forth in Watanabe at the recited location and for the reasons above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Evans et al (US PGPub 20060095142)

Applicant is further put on notice that unless a translation of the priority documents are provided in the response, claims 1-12 will be rejected using US PGPub 2003/0130768 A1 to Hirano, which is an intervening reference and is thusly not used at this time. Applicant is strongly encouraged to amend the claims in light of that reference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric Woods

October 23, 2006


ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER